Here the rocks look similar to those seen at Location 3. The light gray-green color and the talc consistency layers observed at Location 1 were not observed here. The rock is more competent and also contains some of the quartz veinlets. At the end of cut (uphill), some of the altered greenish rock with needle-like structures along fractures was observed and sampled (12090113, see below). The rock is dark gray and shaley, and not visibly fibrous, but the thin green fractured surface could be different. No fibers were visible with hand lens, however.

Another sample (12090114) was collected from north (uphill) end of the road cut. A final sample was collected at south end of cut (12090115). Nothing fibrous was observed in the hand sample.

Analytical Results

Table 2 summarizes the PLM results from the commercial laboratory (see Appendix A) and Table 3 presents a summary of PLM results from MEL (see Appendices B and C). Note that asbestos was identified only at Location 1. The type of asbestos identified was actinolite asbestos, which is consistent with what was reported by USGS (Van Gosen 2010). No other types of asbestos were identified in the samples collected at the site. MEL reported much higher concentrations (i.e., 15-20%) compared to what the commercial laboratory reported (i.e., 0.5 – 0.75%). This is likely because the MEL analyst received whole specimens and likely picked through these looking for suspect asbestos when making his preparations, whereas the commercial laboratory milled the sample as received and processed it without any bias. The difference also could be due to the preparation technique employed by each laboratory. The commercial laboratory used a Spex freezer mill to reduce particle size while MEL did light grinding with a mortar and pestle.

MEL also performed SEM/Energy Dispersive Spectroscopy (EDS) and XRD analysis on select samples. PLM images from all 6 samples analyzed by MEL are included in Appendix B. SEM images from samples 12090101 (12394051) and 12090103 (12394053) are also included in Appendix B. EDS confirmed the presence of actinolite in samples 12090101 and 12090103.

XRD results indicate the presence of chlorite, mica, quartz, and feldspar present in samples that do not contain actinolite (see Appendix C).

Conclusions

EPA conducted a site reconnaissance and limited sampling at the Burlington Hill site in September 2012. Actinolite asbestos was identified at one of four locations sampled during this focused field visit. This location is along a roadcut on the northeast side of Burlington Hill. Asbestos was not found at other sampled locations, including one residence in the subdivision.

Uncertainties

Because this was a very limited investigation, the results have associated uncertainty. We can be confident that asbestos is present at one location on Burlington Hill. Asbestos was not found in the other three locations. A more comprehensive site investigation would be needed to characterize a larger portion of Burlington Hill with respect to the nature and extent of potential occurrences of asbestos.

Risks associated with potential exposures to actinolite asbestos at Burlington Hill cannot be quantified given the type of data collected. For risk characterization, air samples that measure asbestos concentrations that people could breathe in would be needed. EPA often conducts activity-based sampling (ABS) to characterize asbestos exposures and associated risks. Given the available data, EPA would caution people to refrain from disturbing material in the vicinity of location 1.

Discussion

The information gathered during the September 2012 site reconnaissance and focused sampling event confirm the presence of actinolite asbestos at one location on Burlington Hill. However, the results do not give us a sense of the nature and extent of natural occurrences of asbestos nor do they support the assessment of potential exposures and risks to residents, workers, or visitors to the subdivision.

Asbestos is a known, human carcinogen (EPA 1993) and also causes serious non-cancer disease in people who are exposed. As a result, people should limit their exposures to asbestos that occurs naturally at the Burlington Hill site.